MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2017/2018

EHM3096 – PROJECT MANAGEMENT FOR ENGINEERS

(RE / TE)

13 MARCH 2018
2.30 p.m. – 4.30 p.m.
(2 Hours)

INSTRUCTION TO STUDENT

1.This Question paper consists of 7 pages with 4 Questions only.

2. Attempt ALL questions. The distribution of the marks for each question is given.

3. Please write all your answers in the Answer Booklet provided.

Question 1

(a) Name FIVE project time management processes. [5 marks]

(b) Briefly discuss the characteristic of *Critical Path.* [3 marks]

(c) Below is the planned activities and duration for project XYZ.

Task	Duration in weeks	Dependencies	Number of people per week
A	5	-	3
B	1	A	4
C	3	A	2
D	7	A	2
E	4	B	3
F	3	C	3
G	6	E	2
H	1	E	1
I	2	G, H	3
J	4	F	2
K	5	D	1
L	4	I, J, K	3

(i) Draw the network and identify the activities on the critical path. [6 marks]

(ii) State the amount of total float and free float associated with each activity. [9 marks]

(iii) What will be the critical path if the duration for activity *H* increases from 1 week to 3 weeks? Why? (no network required) [2 marks]

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Question 2

(a) Briefly explain the terms *Risk* and *Issue* from the Project Risk Management context. [4 marks]

(b) Figure Q2.1 depicts the typical project risk management processes. The processes include the Risk Management Planning, the Risk Identification, the Qualitative Risk Analysis, the Quantitative Risk Analysis, the Risk Response, and the Risk Monitoring (or Risk Control).

Figure Q2.1 Risk Management Process

(i) Explain the process *Risk Management Planning*, and name TWO techniques in this process. [4 marks]

(ii) One of the techniques used in the Risk Identification are the SWOT Analysis. What does SWOT refers to? [2 marks]

(iii) Under the Risk Response process, name FOUR strategies for the positive risks and FOUR strategies for the negative risks. [4 marks]

(iv) What are the purposes to perform the Risk Management? [2 marks]

(c) An automation company is currently researching and building its 3rd generation motherboard for all the machines. The company has been trying to examine whether it's worthwhile to prototype the motherboard. The company's risk management team has come up with the following consequences of whether the 3rd generation motherboard works, as shown in Figure Q2.2.

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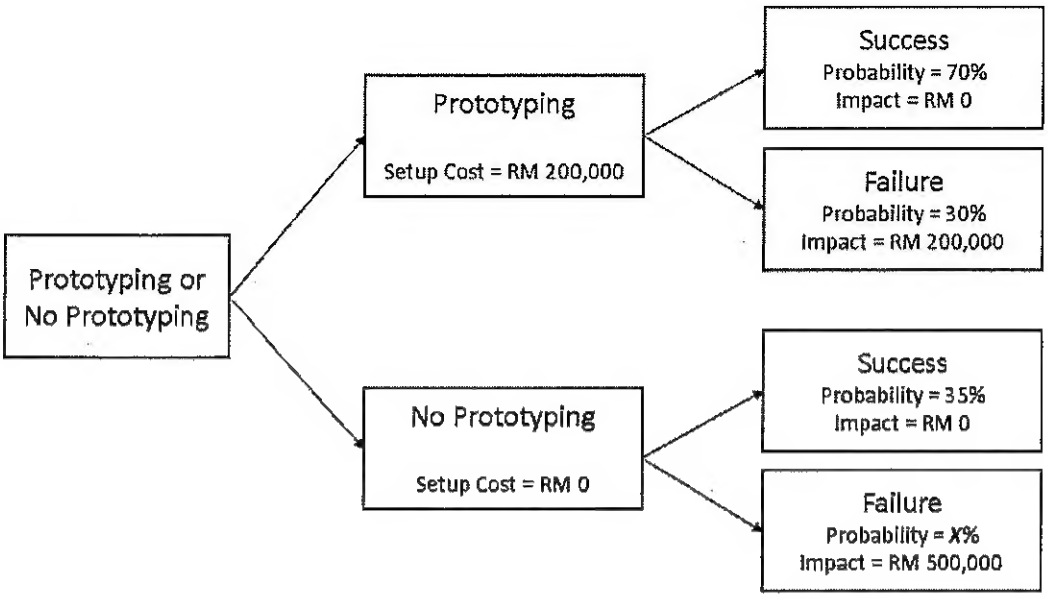

Figure Q2.2 Decision Tree of whether to Prototype the Motherboard

(i) Determine the X in Figure Q2.2. [1 mark]

(ii) What is the EMV (Expected Monetary Value) of *Prototyping* and *No Prototyping*? [4 marks]

(iii) Based on the calculated EMV, what should be the rational decision on whether to prototype the motherboard? [4 marks]

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Question 3

(a) A team has been pulled together from various divisions of a big organization to work on a new process improvement project. The team lead of this project is Sandra from the KL head quarters office. Sandra has 15 years experience as a project manager managing process improvement projects.

The other members of the team include:

Team Member	Experience	Office Location
Peter	10 years experience on various types of projects, expertise in scheduling and budget control	Penang
Siti	5 years experience as an individual contributor on projects, strong programming background, some experience developing databases	Johor Bahru
Lim	8 years experience working on various projects, expertise in earned value management, stakeholder analysis and problem solving	Johor Bahru
Tan	2 years experience as an individual contributor on projects	Johor Bahru
Kumar	7 years experience on process improvement projects, background in developing databases, expertise in earned value management	KL HQ

Sandra has worked on projects with Siti and Lim, but has never worked with the others. Tan has worked with Lim. No one else has worked with other members of this team. Sandra has been given a very tight deadline to get this project completed.

Sandra has decided that it would be best if the team met face-to-face initially, even though they will be working virtually for the project. She has arranged a meeting at the KL office (company headquarters) for the entire team. They will spend 2 days getting introduced to each other and learning about the project.

(i) What is the main goal of Project Team Development? [1 mark]

(ii) *Tuckman Ladder Model* is one of the important tools for Project Team Development. From the scenario given above, write down what are the stages of Project Team Development that the team will go through and what will happen in each stage? [10 marks]

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(b) A RACI table is given below:

	To Rear a Pet Dog at Home	Grandfather	Father	Mother	John (age of 13)	Sally (age of 7)
	Feed the dog	I	C	A	R	
M	Play with dog	C	I	C	R	R
N	Take dog to vet	I	A	R	I	I
P	Morning/Evening walk	R	C	A	R	R
Q	Wash dog	C	A	A	A	I

(i) What is RACI? [2 marks]

(ii) From the RACI table, perform a *Horizontal analysis* on activities M, N, P, Q. [8 marks]

(iii) Propose an improve version of the RACI table. [4 marks]

Question 4

(a) You are a contract project manager for a mobile phone applications distribution company. Your project is to develop a mobile website that allows iOS and Android developers to place their new application online for free or purchase download. This project involves coordinating the parent company, website developers, contractors and distributions. You are preparing a performance review and have the following measurements on hand: *PV*=RM 31,000, *AC*=RM 22,000 and *EV*= RM 28,000.

(i) Calculate the *CV* of the project and interpret the result. [2 marks]

(ii) Calculate the *CPI* of this project and interpret the result. [2 marks]

(iii) Further to performance review, your parent company and you accept project costs to date and assume future work (ETC) will be performed at the budgeted rate. If *BAC* = RM 80,000, *ETC* = RM 27,500, *cumulative CPI* = 1.17. Calculate the EAC. [3 marks]

(iv) Three months later, your project continues running well. In the latest earned value report, you see the *CPI* = 1.2, the *SPI* = 0.8, the *PV* = RM 31,000 and the *SV* = -RM 6,200. Calculate the CV of the project. [4 marks]

(v) Six months later, due to softening currency of MYR (Malaysian Ringgit), the MYR/USD exchange rate increased more than the forecast value. Majority of contracted web developers are from North America which caused cost variance of -RM5,111. As the project manager, what would be your next course of action in handling such project scope changes? Give TWO key lessons learned. [4 marks]

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(b) You have been assigned as Project Manager to develop a next generation Engine Control Unit (ECU) for electric car. You need to deliver ECU samples to 3 potential automotive customers within 100 days to win the electric car market share for next 5 years. The project details are listed below:

Project Title: *Develop Next Gen ECU to gain market share for electric car*

Project Stake-holder: Chief Technology Officer (CTO) of the company.

Project Status:

WBS	Task Descriptions	Owner	Plan Start Date	Actual Start Date	Plan Complete Date	Actual Complete Date	Budget Cost	Actual Cost
1	Project Feasibility Study	PM & Sys Eng.	2-Jan-18	2-Jan-18	5-Jan-18	5-Jan-18	1,000	1,000
2	New ECU Concept Conclusion	Sys. Eng & QA	5-Jan-18	5-Jan-18	6-Jan-18	6-Jan-18	500	500
3	Project Kick-Off	PM, Sys. Eng & QA	8-Jan-18	8-Jan-18	8-Jan-18	8-Jan-18	250	250
4	New ECU Design & Review	HW, SW Designer	18-Jan-18	18-Jan-18	18-Feb-18	18-Feb-18	12,000	12,000
5	Procurement	PM & QA	18-Jan-18	23-Jan-18	18-Feb-18	23-Feb-18	21,000	25,000
6	Proof-Of-Concept Build (Prototype)	Sys. Eng & Designer	18-Feb-18	20-Feb-18	28-Feb-18	1-Mar-18	5,000	8,000
7	ECU intergration functional Test	SW & Sys. Eng.	10-Mar-18	12-Mar-18	15-Mar-18	17-Mar-18	3,000	4,500
8	Build Beta ECU for customer sample	Sys. Eng, Designer & QA	25-Mar-18	26-Mar-18	28-Mar-18	29-Mar-18	10,000	11,000
9	Delivered Samples	PM	8-Apr-18	9-Apr-18	11-Apr-18	11-Apr-18	500	1,000
10	Project Close-out	PM	10-Apr-18	10-Apr-18	11-Apr-18	11-Apr-18	800	800

Remark:

- Procurement shipment delay due to unforeseen weather issue, ROE (USD/MYR) increased from 3.3 to 4.5
- Cost of building hardware and product testing increase is due to additional over-time incurred to reduce the cycle time and overall delivery timeline.
- Delivered sample cost increase is due to swift couriers services to delivered within 24 hours

(i) Create a simple project closure report which contains: project closure summary, project deliverable and action required. [5 marks]

(ii) Give TWO lessons learned with at least 3 recommendations. [5 marks]

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